REMARKS

The Examiner, Ms. Moore, is thanked for the courtesy extended applicants representative by the interview of May 10, 2006, during which the non-applicability of the cited art to the claimed invention was discussed.

By the present amendment, the dependency of claims 19 - 21 have been amended so that the rejection of claims 19 - 22 under 35 USC 112, second paragraph, as being indefinite, in that each of the claims is dependent upon themselves or in a claim that is dependent on themselves, has been overcome. Accordingly, all claims present in this application should now be considered to be in compliance with 35 USC 112, second paragraph.

Although other amendments were discussed with the Examiner at the interview, including a change of the language of vacuum transfer "chamber" to vacuum transfer "unit", applicants have considered it best to retain the language of the claims, without amendment at this time, noting that the dependency of claims 19 - 21 and therewith, claims 19 - 22 has been changed in order to comply with 35 USC 112, second paragraph.

As to the rejection of claims 12 - 14 and 17 under 35 USC 103(a) as being unpatentable over US Patent No. 6,312,525 to Bright et al in view of US Patent No. 4,852,516 to Rubin et al; the rejection of claims 15 and 16 under 35 USC 103(a) as being unpatentable over Bright et al and Rubin et al, further in view of US Patent No. 6,649,019 to Bernard et al and the rejection of claims 18 and 23 under 35 USC 103(a) as being unpatentable over Bright et al and Rubin et al, further in view of US Patent No. 5,855,681 to Maydan et al, such rejections are traversed and reconsideration and withdrawal of the rejections are respectfully requested.

Furthermore, insofar as such rejections are applicable to claims 19 - 22, in view of the amendments of such claims, such rejections are traversed.

With regard to the requirements to support a rejection under 35 USC 103, reference is made to the decision of In re Fine, 5 USPQ 2d 1596 (Fed. Cir. 1988), wherein the court pointed out that the PTO has the burden under '103 to establish a prima facie case of obviousness and can satisfy this burden only by showing some objective teaching in the prior art or that knowledge generally available to one of ordinary skill in the art would lead that individual to combine the relevant teachings of the references. As noted by the court, whether a particular combination might be "obvious to try" is not a legitimate test of patentability and obviousness cannot be established by combining the teachings of the prior art to produce the claimed invention, absent some teaching or suggestion supporting the combination. As further noted by the court, one cannot use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to deprecate the claimed invention.

Furthermore, such requirements have been clarified in the decision of In re Lee, 61 USPQ 2d 1430 (Fed. Cir. 2002) wherein the court in reversing an obviousness rejection indicated that deficiencies of the cited references cannot be remedied with conclusions about what is "basic knowledge" or "common knowledge". The court pointed out:

> The Examiner's conclusory statements that "the demonstration mode is just a programmable feature which can be used in many different device[s] for providing automatic introduction by adding the proper programming software" and that "another motivation would be that the automatic demonstration mode is user friendly and it functions as a tutorial" do not adequately address the issue of motivation to combine. This factual question of motivation is immaterial to patentability, and could not be resolved on subjected belief and unknown

> authority. It is improper, in determining whether a person of ordinary skill would have been led to this combination of references, simply to "[use] that which the inventor taught against its teacher."... Thus, the Board must not only assure that the requisite findings are made, based on evidence of record, but must also explain the reasoning by which the findings are deemed to support the agency's conclusion. (emphasis added)

Before discussing the non-applicability of the cited art to the claimed invention, applicants not that independent claims 12 and 13 are directed to the structural arrangement as illustrated in Figs. 1 and 2 of the drawings of this application, wherein as shown in Fig. 1(a), there is provided an atmospheric block 101 and a vacuum block 102, representing, respectively, an atmospheric side of the apparatus and a vacuum side of the apparatus, with each block containing specific features as described. More particularly, the atmospheric block 101 includes transfer box 108, as recited in each of claims 12 and 13, inside of which an object wafer to be processed is transferred under an atmospheric condition by a transfer robot disposed therein, which transfer box has a plurality of wafer cassettes 109, 110 installed at a front surface portion thereof. Further, as more clearly seen in Figs. 1(b) and 2(a), the vacuum block 102 includes a vacuum transfer chamber 112, which is disposed at a rear surface portion of the transfer box 108 (atmospheric block 101) and is detachably connected thereto by way of load lock chambers 113 so as to enable transfer of the object wafer therein under a vacuum condition. Additionally, as shown in the figures and as recited in claims 12 and 13, at least one vacuum processing chamber (vacuum bloc, 102) in the form of vacuum processing chambers 103 or 104 is disposed at a rear or side of the vacuum transfer chamber 112, as more clearly illustrated in Fig. 2(a), and is connected thereto, with the vacuum processing chamber 103 or 104 being supplied with gas and enabling processing of

the object wafer which is transferred under the vacuum condition by a plasma generated therein, as described at pages 15 - 19 of the specification.

More particularly, in accordance with the present invention, as recited in independent claims 12 and 13, a plurality of connector portions of utility paths, which are for the vacuum processing chambers, are disposed substantially linearly under a connecting portion of the transfer box 108 and the vacuum transfer chamber 112, and being disposed at the rear surface portion of the transfer box 108. Although the Examiner questioned the meaning of "substantially linearly" at the interview, as pointed out to the Examiner "linear" is defined in dictionaries as "straight" so that a substantially straight line path extends from the rear surface portion of the transfer box 108 under the connecting portion of the transfer box 108 and the vacuum transfer chamber 112, as represented by at least a part of the connection interface unit 201 under the load lock chamber 113 (see Fig. 2(b)).

The claims further recite the feature that the utility paths enable supply of utilities including the gas supplied from a building having the vacuum processing apparatus installed therein to the vacuum transfer chamber or the vacuum processing chamber and enables discharge of exhaust form the vacuum transfer chamber or the vacuum processing chamber, including the utilities supplied thereto. As described at page 15, lines 4 - 6 of the specification of this application, the rear side surface of the atmospheric block 101 is used as a supply route for supplying gas, refrigerant, power etc. to the processing block. Furthermore, as described at pages 15 and 16 of the specification, a connection interface 201, which is more clearly illustrated in Fig. 2(b) of the drawings, serves for connecting supply lines such as pipes for gases and refrigerants from separate locations or lines from the power sources is disposed on the rear side portion of the atmospheric block and a

connection portion "is disposed substantially linearly under an entry port for transfer the wafer into vacuum" (emphasis added) (page 15, lines 22 - 23). That is, as described, the supply routes for various utilizes are connected via the connection interface unit 201 and extend to the processing block or vacuum block 102, wherein the supply lines of pipes and power lines extend from the connection interface unit 201, pass below the lock chamber unit 113 and below the center area of the vacuum transfer chamber 112, via an interface unit. As described at pages 17 - 19, by disposing the power lines and pipes extending from a different floor, such as one floor below the floor in which the apparatus is installed, on the rear surface of the box 108 collectively, the work related to the attaching, connecting and removing of supply lines during installation of the apparatus body 100, maintenance operation of the apparatus or the replacement of equipment is facilitated and the work efficiency is thereby improved. The supply lines, such as power lines and pipes from the connection interface unit 201, extend below the lock chamber 113 in the center area of the transfer chamber 112 and via an interface unit disposed on the frame 106 to each bed. A supply path 203 from the connection interface unit 201 is disposed so as to extend from the rear side of the atmospheric block 101 and below the lock chamber unit 113 and the vacuum transfer chamber 112, whereby the space required for working on the connecting portions is minimized, and the footprint of the apparatus system is reduced as compared to the case in which supply lines and connectors are disposed around the apparatus so that the number of apparatuses that can be installed in one unit floor area is increased. Thus, the present invention as recited in claims 12 and 13 provide a specific structural arrangement with improved maintenance and efficiency of the vacuum processing apparatus, and

applicants submit that such features are not disclosed or taught in the cited art, as will become clear from the following discussion.

Turning to Bright et al, applicants submit that the Examiner mischaracterizes the disclosure of Bright et al in relation to the features of independent claims 12 and 13, and the Examiner's contention that "Bright et al disclose a vacuum processing apparatus substantially as claimed ..." (emphasis added). However, the Examiner recognizes that "Bright et al do not explicitly teach the plurality of connector portions of utility paths being disposed substantially linearly under a connection portion of the transfer box and the vacuum transfer chamber, and being disposed at the rear surface portion of the transfer box" nor does Bright et al explicitly teach that any of the gases are supplied from the building having the vacuum processing apparatus installed therein (i.e., the same building in which the processing apparatus is installed)". (emphasis added).

Applicants note that Fig. 1 of Bright et al shows a top schematic view of a vacuum system in accordance with the disclosure and teachings of Bright et al, wherein what may be considered a transfer box 300 is provided on the atmospheric side and is connected by way of load lock chambers 16 to a vacuum transfer chamber 12 having vacuum processing apparatuses 14 arranged at the side and rear thereof on the vacuum side. Figures 2 - 4 of Bright et al show a transfer chamber module platform, wherein as shown in Fig. 4, a facilities panel 48 is provided at the side of the platform 26 wherein facility conduits 46 connect to the facilities panel box 48 in order to receive facilities from the manufacturing plant or fabrication facility, as described in column 6, lines 27 - 46. As described, various types of connections 50, 52, 54 and 56 are provided on the side of the facilities panel 48. Thus, applicants submit that while Bright et al discloses a plurality of connection

portions, as represented by the facility panel 48, it is readily apparent that Bright et al does not disclose or teach in the sense of 35 USC 103 "a plurality of connector portions of utility paths being disposed substantially linearly under a connection portion of the transfer box and the vacuum transfer chamber, and being disposed at the rear surface of the transfer box. As is evident from the disclosure of Bright et al, in relation to the facilities panel 48, which is mounted at a side of the platform 26 of the transfer module 12 thereof, such facilities panel 48, if considered to be a connector portion of utility paths is not disposed substantially linearly under a connecting portion of the transfer box 300 and the vacuum transfer chamber 112 of Bright et al, nor is the facilities panel 48 disposed at the rear surface portion of the transfer box 300. Thus, Bright et al does not disclose or teach the structural arrangement as recited in claims 12 and 13 in the sense of 35 USC 103, and Bright et al does not provide the efficient utilization of work space, wherein the space required for working on the connecting portions is minimized, and the footprint of the apparatus system is reduced. Accordingly, applicants submit that claims 12 and 13 and the dependent claims patentably distinguish over Bright et al in the sense of 35 USC 103.

The Examiner, at least recognizing some deficiencies of Bright et al with regard to the claimed features of independent claims 12 and 13 and the dependent claims, contends that such deficiencies are overcome by Rubin et al. The Examiner indicates that "Rubin et al disclose providing a plurality of detachable modular processing chambers (Figs. 1 - 2 and 7, 100) that form a multi-chamber processing apparatus each with connections (174) to serve as facilities below the individual processing chambers and supplied from a building having the processing chambers installed therein (via a conduit 172), for the purpose of providing a unique and

flexible base for a future expansion and change, as well as providing each of the modular processing chambers as an independent, self-contained unit ..." (emphasis added). The Examiner further contends that it would be obvious to combine Bright et al and Rubin et al in order to provide the claimed features. Applicants submit that the Examiner has engaged in a hindsight reconstruction attempt, in complete disregard of the teachings of the individual references, utilizing the principle of "obvious to try" which is not the standard of 35 USC 103. See, In re Fine, supra.

At the outset, applicants note that Rubin et al issued in 1989, and specifically discloses that the individual modular apparatus 100 includes a processing module 176 at the top portion thereof, and the apparatus 100 is positioned over the docking sub-assembly 104, and enables simultaneous interconnection of all surface facilities by "engagement of the connectors 174 on the chassis docking plate 114 with those on the sub-assembly docking plate 158" (column 7, lines 2 - 7). Thus, the specific disclosure of Rubin et al is that connecting portions for various utilities is obtained in a vertical path from below the processing module 176 to the processing module. Applicants submit that this structure is disclosed in the Rubin et al patent which issued in 1989. On the other hand, Bright et al, which is based upon a provisional application filed in 1997, some ten years later, and may be considered to have been fully aware of the disclosure of Rubin et al, specifically provides that a facilities panel 48 is located at the side of the platform 26, which supports a transfer chamber 12 to which processing modules are connected. Thus, applicants submit that Bright et al specifically discloses a different structure for connection than that disclosed by Rubin et al. Thus, applicants submit that irrespective of the Examiner's contentions concerning Rubin et al, the combination of Rubin et al with Bright et al is improper, and fails to provide the claimed features in the sense of 35 USC 103.

Furthermore, with respect to Rubin et al, irrespective of the Examiner's contention that Rubin et al may be provided below any chamber and that "each of the connecting openings in Rubin et al is provided over substantially the entire area of the apparatus (see Figs. 3 and 5), and thus would be disposed at a rear surface of a chamber (e.g., transfer box) where rear is interpreted to mean side facing another downstream chamber, where rear surface is interpreted to mean below or underneath the chamber, the connector portions provided in Rubin et al also meet this interpretation (see Figs. 1 and 2)", (emphasis added), it is apparent that the Examiner utilizes any interpretation considered necessary in an attempt to meet claim limitations. However, it is readily apparent that Rubin et al, like Bright et al provides no disclosure or teaching of the recited features of independent claims 12 and 13 of a vacuum transfer chamber disposed at a rear surface portion of the transfer box and detachably connected thereto, the vacuum transfer unit enabling transfer of the object therein under a vacuum condition (emphasis added) and "a plurality of connector portions of utility paths being disposed substantially linearly under a connecting portion of the transfer box and the vacuum transfer chamber and being disposed at the rear surface portion of the transfer box" (emphasis added), as described in the specification of this application, and which ensure work efficiency and ease of maintenance and repair, which features are contrary to that disclosed and taught by Bright et al and Rubin et al, taken alone or in any combination thereof. Thus, applicants submit that the independent claims patentably distinguish over the combination of Bright et al and Rubin et al in the sense of 35 USC 103 and should be considered allowable thereover.

As to the further combination of Bright et and Rubin et al with Bernard or Maydan et al, it is readily apparent that Bernard and Maydan et al fail to overcome

the deficiencies of Bright et al and Rubin et al in the sense of 35 USC 103. More particularly, with respect to the contention by the Examiner that Maydan et al in column 21, rows 21 - 19, discloses providing display units at various locations, applicants note that column 21, lines 5 - 10 of Maydan et al indicates that "The interface between a user and the system controller is preferably a CRT monitor and light pen which is depicted in Fig. 8. In a preferred embodiment, two monitors are used, one monitor mounted in a clean room wall for the operators and the other monitor behind the wall for the service technicians". Irrespective of the such disclosure by Maydan et al, applicants submit that Maydan et al provides no disclosure or teaching of "display units disposed at the rear surface portion of the transfer box and enable display of the status of the utility" as recited in claims 18 - 23, for example. Thus, the Examiner's contention that the display unit may be provided at any place does not relate to the claimed features of claims 18 and 23, and again represents a hindsight reconstruction attempt utilizing the principle of "obvious to try" which is not the standard of 35 USC 103.

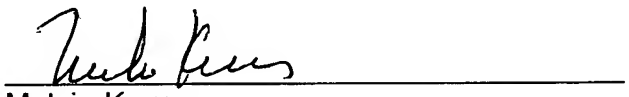
In view of the above amendments and remarks, applicants submit that all claims present in this application should now be considered to be in compliance with 35 USC 112 and that all claims patentably distinguish over the cited art and should now be in condition for allowance. Accordingly, issuance of a Notice of Allowance is respectfully requested. Applicants request that the paper also be considered as a Notice of Appeal and hereby appeal the final rejection of claims 12 - 23 and authorize charging of the appeal fees as indicated below. However, applicants request that the charging of appeal fees be held in abeyance pending a determination by the Examiner concerning the allowability of this application, since if

this application is allowed, the filing of a Notice of Appeal and charging of appeal fees become unnecessary.

To the extent necessary, applicants petition for an extension of time under 37 CFR 1.136. Please charge any shortage in the fees due in connection with the filing of this paper, including extension of time fees and notice of appeal fees, to the deposit account of Antonelli, Terry, Stout & Kraus, LLP, Deposit Account No. 01-2135 (Case: 648.43120CC2), and please credit any excess fees to such deposit account.

Respectfully submitted,

ANTONELLI, TERRY, STOUT & KRAUS, LLP



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